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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/796,752	02/06/97	ARAI K	614.1804/HJS

LM01/0511

STAAS & HALSEY
700 ELEVENTH STREET N W
SUITE 500
WASHINGTON DC 20001

EXAMINER	
NGUYEN, P	
ART UNIT	**PAPER NUMBER**
2732	5

DATE MAILED: 05/11/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/796,752	Koji Arai
Examiner	**Group Art Unit**
Phuongchau Ba Nguyen	2732

☒ Responsive to communication(s) filed on *Amendment on March 1, 1999.*

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-13* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) *11 and 12* is/are allowed.

☒ Claim(s) *1-3, 5-7, 9, 10, and 13* is/are rejected.

☒ Claim(s) *4 and 8* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Objections

1. Claim 12 is objected to because of the following informalities: on line 28 of page 32 the word "form" should be changed to "from". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, and 6-7, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Kato et al (U.S.Pat. 5,583,851).

For claims 1-2, 6-7, 13 the admitted prior art in figure 1 discloses a time divisionally distributing a first signal of said first transmission rate into n-1 second signals (n=3,4,...)(see line 32, page 1-line 37, page 2).;

Kato et al discloses respectively converting (by multiplying orthogonal spread codes by the pseudo noise series at transmitter side, col.1, 40-49 and see figure 1) said n-1 second signals into n-1 third signals of a second transmission rate less than said first transmission rate; when a high bit rate signal information of nB [bps or bits/second] has been transmitted to the user, at the transmitter side, the separating unit separates the user information into n, the spread modulating

units spread each of n separated user information at a bit rate B[bps], or the spread multiple spectrum, in the spread code of channel numbers allocated to one user (col.3, 20-34).

The admitted prior art also discloses transmitting said n-1 third signals of said second transmission rate through radio transmission paths between n-1 radio base stations and a terminal connected to at least one terminal unit (see line 32, page 1-line 37, page 2 and figure 1).

Therefore, it would have been obvious to ones with ordinary skills in the art at the time of the invention was made to include the feature of multiplying orthogonal spread code by the pseudo noise series at the transmitter side to modulate the input signal from high bit rate signal to lower bit rate signal **(as second transmission rate less than first transmission rate as claimed)** as converting signal from high rate to low rate.

4. Claims 3 & 5, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Kato et al (U.S.Pat. 5,583,851) as applied to claims 1, 6 above, and further in view of Takatori et al (U.S.Pat. 5,475,676).

For claim 3, the admitted prior art further discloses at least one redundant radio base station n (It would have been desirable to use the n base station in figure 1 as the redundant radio station) transmitting a fourth signal through radio transmission path between said terminal station and said at least one redundant radio base station n, data of said fourth signal having a given relationship with data in signals transmitted between at least k (k<= (n-1)) radio base stations of said n-1 radio base stations and said terminal station (see figures 4, 5a-c, col.2, 27-56).

For claim 3, the admitted prior art and Kato et al do not disclose the compensating of data

in interrupted transmission path.

Takatori et al discloses the protection line which will recover data when failures occur in transmission (see col.1, line 21-35, & figures 4, 5a-c, col.2, 27-56).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a protection line into the transmission between two terminals to protect data when failures happen in transmission and used one of the terminal to be the redundant base station (node A) to the terminal (node B). Improved protection line would have been desirable and well-known feature in transmission data in radio communication systems.

For claim 5, it is inherent that monitoring interruption of transmission paths between said n-1 radio base stations and said terminal station because for being able to know which working line is failured, all working lines must be monitored to be able to switch from the failure line to the protection line.

Claim 9 is rejected with the same reasons as set forth in claims 1-3 & 5.

5. Claims 4,8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Kato et al (U.S.Pat. 5,583,851)

Kato et al discloses rate conversion (32-despreaders, figure 6) and multiplex means (33-multiplexer, figure 6) for converting and multiplexing receiving third signals of second

transmission rate into signals of first transmission rate.

The admitted prior art disclose a receiver (RX in terminal station 10, fig.1) receiving third signals of second transmission rate transmitted from n-1 radio base station.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the well-known feature of rate conversion and multiplex means in the terminal station at receiving side because at the transmitting side modulated signal with spreading code and pseudo-noise, the receiving side must have the despreader for despreading the signals. This feature is well known.

7. Claim 11 is allowed because the prior art of the record fails to teach at least one second summation means, when at least of said transmission paths is interrupted for generating a fifth signal, by summing data of every timeslots of at least k signals of signals transmitted from said n-1 radio base stations except for a signal to be transmitted through an interrupted transmission path which is considered in combination with other limitations in claim 11.

8. Claim 12 is allowed because the prior art of the record fails to teach said terminal station comprising rate conversion and multiplex means for converting and multiplex received third signal of the second transmission rate into signals of said first transmission rate which is considered in combination with other limitations in claim 12.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is (703) 305-0093.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doug Olms, can be reached on (703) 305-4703. The fax number for this group is (703)305-9509.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-3900.

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May 5, 1999

CHAU NGUYEN
PRIMARY EXAMINER